

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 September 2005 (01.09.2005)

PCT

(10) International Publication Number
WO 2005/080267 A2

(51) International Patent Classification⁷: **C01B 21/09**,
C01C 1/16, B01J 12/00

John [GB/GB]; 40 Heath Road, Chester CHJ2 1HX (GB).
PROCTOR, Lee, David [GB/GB]; 4 Rock View, Village
Road, Maeshafn, Denbighshire CH7 5LR (GB).

(21) International Application Number:
PCT/GB2004/004398

(74) Agent: **W. P. THOMPSON & CO.**; Coopers Building,
Church Street, Liverpool L1 3AB (GB).

(22) International Filing Date: 18 October 2004 (18.10.2004)

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0402629.0 7 February 2004 (07.02.2004) GB

(71) Applicant (*for all designated States except US*):
PHOENIX CHEMICALS LIMITED [GB/GB]; Thursby
Croft, Bromborough CH62 3PW (GB).

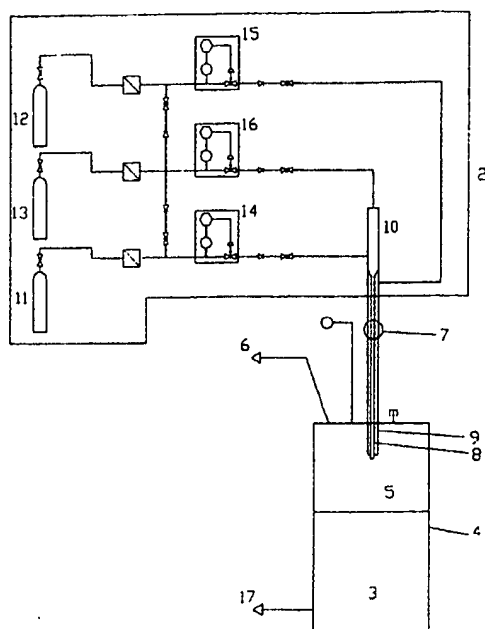
(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **WARR, Antony**,

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: REACTOR AND PROCESS



(57) Abstract: The invention relates to a process for the production of chloramine comprising supplying a first reagent stream comprising chlorine gas and a second reagent stream comprising ammonia gas to a reaction zone maintained at a temperature of less than 275° C and configured to allow expansion of the first and second reagent streams in the reaction zone to an extent sufficient to generate chloramine as a gas and ammonium chloride as a free falling solid. The invention also provides a chemical reactor suitable for operating this process.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IL, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*